

UNIVERSITY OF TAMPERE

Faculty of Management

**CHARACTERISTICS OF USER
EXPERIENCE IN ART E-COMMERCE:
CASE “buybuy Art”**

Business Competence

Master's thesis

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Abstract

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With the development of mobile Internet technology and the proposed of “Internet plus” by Chinese government, art trading online and offline is not just limited to the simple combination but innovated to realize a new business model in art market. In order to conform to the new consumption trends, art e-commerce providers should shift their operation principles from commodity-centered to user-centered, from items to customers. Thus, by taking user experience as a breakthrough, exploring the suitable methods to attract increasing potential customers will be the mainline in this research.

The adoption of relativist position as the methodology paradigm will provide this paper not only an aspect of empirical argument from interviews and literature reviews, but also a scientific demonstration through case study of “buybuy Art” and interviews.

After searching, identifying and reviewing a series of literatures in regard to combination of Internet and art, analysis of interview as well as case observation, those dedicate to attain holistic viewpoints of user experience for art e-commerce platforms. From that, the characteristics of users trading art online will be defined. Besides, the existing problems such as authenticity of artworks and credit issues still need to be paid attention to. The introduce of light social media such as WeChat and products recommended in personalization can optimize the user experience.

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1. Introduction

In recent years, after China put forward the "Internet plus" strategy, with Internet as its carrier, E-commerce has developed rapidly. Moreover, with the improvement of people's living standard and aesthetic judgment, art has become a symbol of a person's taste. Correspondingly, most works of art become acceptable to the public no matter it's in terms of the content, the subject or the price, so that more and more of them are becoming a part of the life of ordinary people. According to the *TEFAF Art Market Report 2017*, in 2016, China ranked in third place after the U.S. and the U.K. and had a 18% share of the global art market (Pownall, 2017). But now, it reported that China has taken up the second-largest place for art worldwide by holding 21% of market share instead of UK (Gray, 2018). Moreover, online sales are only reported for around 2% of the total sales in 2007 and 2008, but it amplified to 7.3% of the total sales in 2016 (Pownall, 2017). Based on data above, it can be found that Internet has breathed new vitality into the traditional field of art trading. Developing "Internet + Art" is significant as it may alter the structure and pattern of art market in the future.

On this background, many B2B and B2C e-commerce platforms emerge and develop in various regions of the world overnight in this context. The traditional artworks industry is following the development trend closely and entering into the e-commerce market quickly. The online Guardian website, the largest auction house in China, mainly engages in the auction of online artworks in Chinese mainland (Who We Are, 2018). Xu Beihong's masterpiece "The Foolish Old Man Who Removed the Mountains" (Chinese: 愚公移山) was sold for 2.5 million yuan (approximately 334,000 euro) on November 15, 2000, setting a record for the highest price of online auction artwork (Wang, 2006). Since then, the website of socang.com in China, hualangnet.com, artxun.com and the artron.net started to establish their trading section. Thereout, new artwork trading websites began to appear. Comprehensive shopping websites such as eachnet.com and Taobao.com set up categories including collections and antiques, and artists have also started to keep a shop on these websites. The number of art transaction

websites has continued to increase with the development of e-commerce in China. Although some websites such as artvip.net have been shut down due to poor management, the e-commerce platforms develop well in virtue of Internet and attract other sectors to the online market under the background of increasingly perfect of e-commerce platform. Especially in recent years, the arts and crafts industry such as ceramic crafts, folk handicrafts, high-end crafts, and home textiles develop rapidly. Their sales volume accounts for 30% of the total amount of e-commerce market, which indicates that the e-commerce platform has helped traditional artworks move forward (Bhat & Yadav, 2017).

However, in differences with other common goods, works of art possess special attributes that many others don't have. Therefore, traditional e-commerce models, such as that of Taobao and JD.com, are not necessarily applicable to art transaction. Players of online art business can make considerable progress only if they keep trying to understand users in practice, identify problems encountered by consumers shopping online, strive to enhance the user experience of online art transaction, and maximize the advantages of e-commerce so that consumers become addicted to online transactions (Fang & Salvendy, 2003).

With the progress of technology, although the contents and perspectives of relevant papers and literature concentrate on e-commerce business in China are becoming increasingly diverse and mature, very few studies on the perspective of electricity suppliers on art especially with the relationship of user experience. Therefore, the purpose of this study is expecting to explore the current development of Chinese art e-commerce, and understand the user experience under the "Internet plus" policy raised by Chinese government as well as the vision of e-commerce. Furthermore, the study will examine how characteristics of user experience affect the platforms of art electricity suppliers and drive customers to consume artworks from the platforms in order to stop a gap in these types of study.

This paper aims to answer the following research questions (RQ) through analyzing the

“buybuy Art” case:

RQ1. What are the characteristics of online consumers via art e-commerce in China?

RQ2. How do Chinese art e-commerce attract consumers by enhancing the quality of user experience?

Hopefully, this paper will bring some thinking on the development of the discipline of art and design.

The purpose of this study is addressed through five chapters. Firstly, it briefly states the current situation of development in Chinese e-commerce especially in art e-commerce under the policy called “Internet Plus”. Besides, recent research on user experience and meaning of improving user experience in online transactions are presented. Meanwhile, research purpose and research questions are also described.

The second chapter expresses the meaning of the “Internet plus” strategy, its background and its influence on relevant industries and fields on a literature base. Papers on electronic commerce and user experience in China and abroad are summed up, classified and analyzed. In addition, based on the analysis of typical cases and products in e-commerce, it expounds that the core of user experience is users' demands for products and functions, and the importance of user-oriented product design is explained too. The focus of the analysis is on the characteristics and present situation of the development of art e-commerce in China.

Thirdly, it illustrates the theoretical method that this paper involves in. Moreover, aiming to provide an objective demonstration as well as data analysis, methods on how to collect the data are included.

In the fourth part of this thesis, with the result of interview, the paper redefines user experience research and the influence of user experience improvement on art e-

commerce, which are beneficial to the development of art e-commerce and the relationship between products and user experience. Additionally, with “buybuy Art” as an example, goals and measures for improving user experience in mobile e-commerce are summarized. This helps to find out new ideas on improving user experience in art e-commerce. Moreover, targeted strategies, which are proposed to solve the problems in user experience and interaction logic in e-commerce, are analyzed too.

Finally, in view of the current situation of China's e-commerce industry, this paper concludes the summary and expectation from the perspective of user experience design. Inadequacies of the paper as well as the content and direction of further research are also discussed.

2: Internet Invade into the Art

2.1 Literature review

As business can derive a benefit and attain customers from all over the world through internet in every second without investing a physical store; where consumers can purchase almost everything from everywhere moment by moment. The Internet has become the focus of research and discussion in the academic world. Moreover, with the progress of technology, the contents and perspectives of relevant papers and literature are becoming increasingly diverse and mature.

In Editor's *The Online Art Market Is Booming – Here's What You Need to Know*, they demonstrate that consumption-based assembling especially in luxury items is accelerating the growth rate from art e-commerce platforms and the volume of market value is predicted higher than the numbers collected (Editors, 2016). Besides, Reyburn's research *The Art Market Is Still Waiting for an Online Revolution*, carried out an analysis systematically on different kinds of sales websites. It states that online purchasing has been deemed to be a main tool to achieve more consumers instead of revenue. From the perspective of consumers, they hesitate to buy artworks with a high price online as a physical investigation is what they believed in. On the contrary, online auctions have a great impact on sales volume of paintings (Reyburn, 2017). In Pymnts's research *The Art of Business in The Online Art Marketplace*, the author states that it seems impossible to purchase artworks from artists via internet several years ago, however, an increasing momentum breaks this hypothesis. He also indicates that the artistic market is full of strong contenders which making the services provided from online transaction platforms varied, for example online auctions, online galleries, and other forms of presenting artworks (PYMNTS, 2017). In addition, Zhao Lingyi's *First Exploration of E-commerce Marketing of Artworks* describes the practicability of the modes of artwork trading online is "community plus e-commerce and plus offline support", and those five factors which are information identification, internet

demonstration, third party payment, community evaluation and value-added services must be contained in a consolidated artwork online trading platform (Zhao, 2010). On the basis of literatures explored and Chinese artwork market considered, two key phrases are taken into account in e-commerce marketing in this paper: e-commerce platforms of Chinese artwork and user experience.

2.2 Internet development in China and “Internet plus” policy

2.2.1 Development of internet in China and concept of “Internet plus”

In the world, with industrial transfer and the rise of emerging economies, the trend of the global Internet’s “shifting its center eastward” is becoming increasingly obvious (Yicai Global, 2017). In 2016, the number of Internet users in the world reached 3.425 billion, accounting for nearly 50% of the world's total population (Internet Users, 2016). In Asia, Internet users accounted for 48.4% and China and India have surpassed the United States to become the world's first and second biggest Internet countries (Internet Users, 2016). According to statistics in April 2017 presented in the following table 1, the top three companies (Apple, Google and Microsoft) with the highest annual revenue figures in the world were all Internet-based companies. And it is not difficult to find that those top ten companies are almost established based on the internet (Forbes, 2017). All these mean that the Internet era has arrived and become a powerful promoter of social progress and economic growth.

Ranking of the companies rank 1 to 10	Market value in billion U.S.dollars
Apple	752
Alphabet (Google)	579.5
Microsoft	507.5
Amazon.com	427
Berkshire Hathaway	409.9
Facebook	407.3

ExxonMobil	343.2
Johnson & Johnson	338.6
JPMorgan Chase	306.6
Tencent Holdings	277.1

Table 1 Top ten largest companies in the world by market value in 2017. Reprinted from “The 100 largest companies in the world by market value in 2017 (in billion U.S. dollars),” by Forbes, 2017 (<https://www.statista.com/statistics/263264/top-companies-in-the-world-by-market-value/>). Copyright 2018 by Statista.

According to Liu’s article *A Study of China Arts Commerce Development Status*, Chinese introduction and development of internet has experienced four phrases: web portal, search engine, Web 2.0 which is the establish of websites, and Web 3.0 represents the mobile internet. It is the key power guiding and pushing the evolution of e-commerce in China (Liu, 2015).

Synchronization in development history of internet in international viewpoint, the original phrase – the web portal – process a serial of actions such as collection, sorting, refining, rhetoric of plentiful of information and shows them on screen. Its function is to present the information with few interactions with customers (Bringula, 2013). And basically, it is a one-way interaction that artrade.com, zhaoonline.com and artxun.com could be represented.

With the arrival of Web 2.0 which making bilateral interaction come true, sssc.cn, dadadaka.com and artand.com are taken as examples to illustrate the transformation from information delivery to information exchange (Liu, 2015).

Nevertheless, Web 3.0 achieved the goal for many-to-many interactions. It contains not only people to people but also human-computer interaction as well as multiple terminals interaction. On the basis of era of intelligence life, techniques of Internet of Things, big data and cloud computing help people to gather what they want without any limitations

everywhere in every second (Liu, 2015). Therefore, art e-commerce platforms request to connect art market with internet with fully integrated. Otherwise, they cannot avoid the destiny that they will be substituted by the even “stronger”.

Nowadays, with the widespread usage of mobile phones, people tend to purchase artworks just by sliding and clicking that small screen. Thus, m-commerce was introduced. On the other hand, art e-commerce also began to exploit their mobile version in order to keep pace with this trend. Not only the delivery of information, but also real-time operation such as the adoption of live auctions is becoming the mainstream of art trading. In especial, China will make a tremendous contribution to that due to its large number of usage volume (Dollas, 2015).

Nowadays, in China, the proposal of “Internet plus” is closely related to the progress of science and technology and the transformation of economic society. In November 2013, Ma Huateng, Tencent chairman and CEO, made the speech *Seven Road Signs to the Future of the Internet* at the WE (Way to Evolve) conference and formally gave additional illustrations on the concept of “Internet plus” (Hu, 2016). Then, in 2015, Premier Li Keqiang brought up the operaton plan of “Internet Plus” in his Government Work Report presented to the 12th National People's Congress of the People's Republic of China, and made the concept officially adopted (eng.gov.cn, 2015). From this moment, the concept of “Internet plus” has been considered a national strategy and obtained wider attention.

2.2.2 Characteristics of “Internet plus”

In the nearly two years after its proposal, the concept of “Internet plus” has had profound influence on all walks of life and become an excellent tool to promote the upgrading of the consumption structure and guide the innovation of the masses (Zhao, Xiong, Fang, 2016). The reason mainly lies in its following characteristics:

a) The biggest value of “Internet plus” is that it helps the whole society establish the

most efficient connection. It can connect various industries closely to achieve cross-boundary integration (Zhao, Xiong, Fang, 2016). “Plus” means change, openness, and reintegration (Wang, Chen et al., 2016). Industries can only converge superior resources and give full play to team work if they closely work together and carry on the exchange of needed goods, thus promoting the innovative development of the whole industry. This kind of cooperation between industries also means the fusion of identity (Jr. & Buhrmester, 2015). For example, on the platform of Taobao, a customer in a particular scenario can become a dealer in another context and a customer’s consumption behavior could also transform into investment behavior in another business activity (Liu, 2015).

- b) Previously resources and investment driven economic growth becomes driven by innovation (Lange, 2015). The growth mode with high pollution, low output and intensive resources has long been difficult to sustain (Alongi, 2002). Therefore, innovation driven development is the right path, which is also a special advantage of the Internet industry (Zheng, 2015).
- c) “Internet plus” means reshaping structures. The discourse power and the rules of activities of the whole society are constantly changing. The economic structure and the social structure will also face huge changes (Bei & Wang, 2015).
- d) It reflects the value of respecting human nature and principle of people oriented. People are the fundamental strength promoting the development of productivity and the progress science and technology. The development and prosperity of the Internet also rely on research on people and respect for users as well as full play of the greatest potential of each individual (Wang, 2016), such as UGC (User Generated Content), involvement marketing, and sharing economy and so on.
- e) The Internet can connect everything. The existence of the Internet provides more convenient basic conditions for the integration and cross-boundary among different fields, thus contributing to the formation of a multi-industry and multi-dimensional network ecosystem (Qadir, Sathiaselvan et al., 2017).

2.2.3 Realistic significance of “Internet plus”

For traditional industries, “Internet plus” means upgrading instead of subversion. This trend is more obvious in e-commerce (Wang, Chen et al., 2016). Many bricks-and-mortar stores are also speeding up to join in the games of e-commerce in order to survive and grow. Particularly, it took China less than 10 years to complete the upgrading from the user structure of the PC Internet era to that of the mobile Internet era, enabling people to feel the benefits brought by the development of the Internet anytime and anywhere (eCommerce in China – the future is already here, 2017). On the one hand, it has promoted the status upgrading of a large number of emerging industries and created more employment opportunities that are more flexible. On the other hand, “Internet plus” has not only burgeoned quickly in the tertiary industry but also grown in offline traditional industries slowly, which will promote the formation of a new industrial pattern in the future (Bei & Wang, 2015).

2.3 E-commerce development in rapid speed

2.3.1 Introduction and characteristics of e-commerce

After more than ten years' development, China's e-commerce platforms have gradually upgraded from the PC Internet to the mobile Internet, resulting in the emergence of a large number of mobile e-commerce users, and the audience of e-commerce has also shifted from enterprises to the general public (Huang, Wang & Day, 2008). During this period, the operating modes and contents of online products are varied. In general, there are seven types of e-commerce presented in table 2 below (Ding, 2016):

Types of e-commerce modes	Charateristics
B2B – Business-to-Business	A great market potential, high transaction rate, low-cost, win-win for buyers and sellers

B2C – Business-to-Consumer	Personalized service, shifting from management of commodities to consumers
C2B – Consumer-to-Business	Customers' requirements will be customized largely
C2C – Consumer-to-Consumer	More participants, broad coverage, diversity of products, trading flexibility
B2G – Business-to-Government	High speed and informative
G2B – Government-to-Business	Transactions via electronic network system
G2C – Government-to-Consumer	Similar to G2B but targeting to private citizens

Table 2 Seven types of e-commerce (Source: Personal collection)

Among them, B2C and C2C are the most well-known two types to common consumers. B2C, namely Business-to-Consumer, is an online retail mode where enterprises or organizations sell goods or services directly to consumers (Ismagilov, 2015). For this form of e-commerce, a virtual mall on the Internet needs to be built and consumers will buy things and make payment on such platform via the Internet. Tmall.com and JD.com are the most representative e-commerce brands in China's B2C world. There is another name for this mode, namely "electronic retailing" (Ding, 2016). C2C, namely Customer-to-Customer, represents the business behavior between consumers. Online sales of personal services and expertise are part of this mode (Ismagilov, 2015). Compared with other competitors in China, Taobao has unshakable dominance in the C2C world.

In recent years, driven by the progress of mobile Internet technology, e-commerce in China is booming. The daily sales on Double 11 Shopping Festival has increased year by year, reaching 120.7 billion yuan (approximately 16.1 billion EUR) and 168.2 billion yuan (approximately 22.4 billion EUR) in a single day respectively in 2016 and 2017

(CIW Team, 2017). With the popularization of large screen smart mobile phones and the wireless Internet, the rise of the post-1990s and even the post-2000s on the Internet, and the prosperity of WeChat and derivative micro business groups, the whole industry environment for e-commerce has undergone tremendous changes in terms of aspects like technical support, practitioners and users and others (Rong, 2016). Specifically, the development of e-commerce platforms in these years has shown the following characteristics:

- a) The decentralization of the overall traffic: In the past two years, the monopoly of one or more players in e-commerce has been broken down and many Internet companies and micro businesses targeting at small market segments have appeared and grown gradually. The segmentation of the market has provided them with more opportunities to fill gaps in the market (“WeChat Mini Programs: Opening Up New Pathways for Selling,” n.d.). For example, JD.com mainly sells 3C products (Computers, Communication products and Consumer Electronics), jumei.com focuses on selling cosmetics, while dangdang.com mainly markets books.
- b) The personalized needs of users are gradually unleashed (Hyun, 2015). The post-1980s and the post-1990s become After 80, after 90 to become the majority of online shoppers and even the post-2000s are important participants and contributors in e-commerce. Users born in different eras have different values and consumption views, due to which standardized products and services can no longer satisfy individual needs of users of all ages. Investigation turned out that the post-1990s users, who advocate individuality and advanced consumption, place much emphasis on their existence as individuals and seek self-identity. However, the post-1980s users, who have gradually become the backbone of society, pay more attention to quality and pursue brand consumption and impulse consumption (Sørensen, 2013).

From the website of Statista, The following figure 1 demonstrates the age segmentation of online shopping in a world scope in 2014. It is clear that the proportion of population who aged between 25 and 34 years old accounted for the

majority of online shoppers, which is 26.5% of the whole world population. Followed by that, the proportion of people aged 15-24 making transactions online was 25.4%. Moreover, the lowest percentage of internet users which is 13.5% of people were senior citizens aged from 55-years-old. The last but not the least, people respectively aged from 35 to 44 occupied 20.5% and 45 to 54 hold 14% of the population around the world.

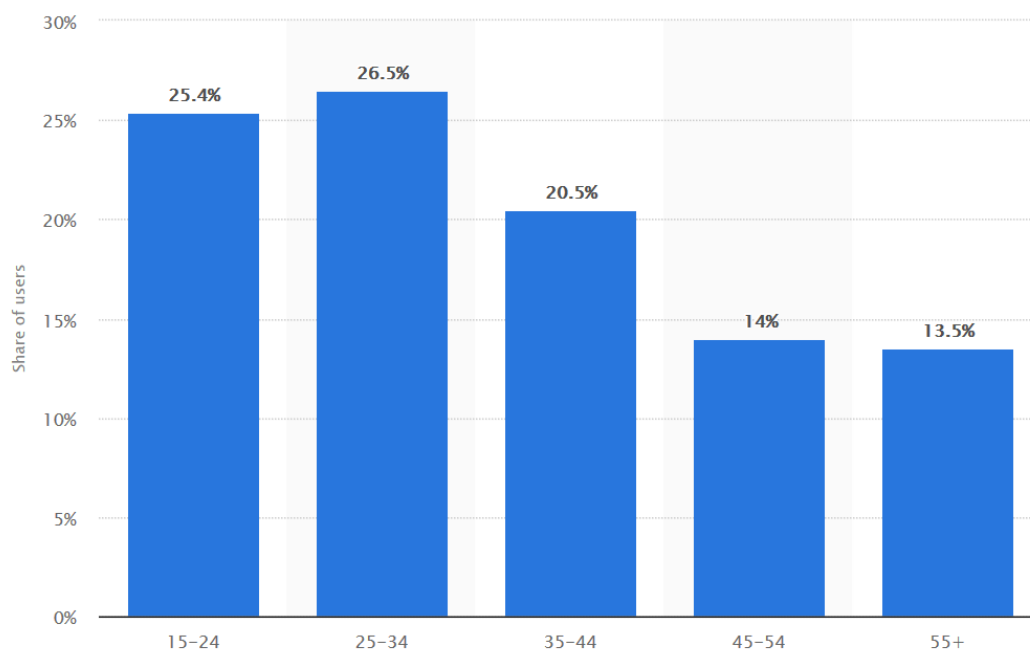


Figure 1 Age proportion of online shoppers worldwide in 2014. Reprinted from “Distribution of online retail users worldwide as of June 2014, by age group”, by Statista, 2014 (<https://www.statista.com/statistics/321540/online-retail-global-age-distribution/>). Copyright 2018 by Statista.

2.3.2 E-commerce to M-commerce Era

After over ten years of development, e-commerce has witnessed the initial slow step, the rapid development in 2010, and then the rise of micro businesses and mobile e-commerce players in recent years. However, with the aggravating competition and the decentralization of traffic, e-commerce enterprises have to create and improve user

experience from all aspects like channels, commodities, contents, processes, operation experience, and operation modes (Alshehri, Aldabbas et al.). Generally speaking, the mainstream e-commerce products in China share the following features:

Firstly, the center of e-commerce is mobile. According to the 37th China Statistical Report on Internet Development released by China Internet Network Information Center, by December 2015, Chinese netizens reached an astonishing number of 688 million. More than 90% of them access the Internet through mobile terminals like mobile phones. The number of users who often shop online reached 413 million while the number of users shopping via mobile phones reached 340 million (China Internet Network Information Center, 2016). The mobility of network terminals has led to the mobile trend of e-commerce, which is not only reflected in the number of users but also in these three aspects: share of sales volume, new operation modes, as well as the recession of PCs and the progress of mobile phones. E-commerce players can utilize this feature to explore new patterns, such as social shopping and interactive shopping (Yamamoto, 2010).

Secondly, contents are personalized. As needs are unleashed, both e-commerce platforms and individual online sellers are striving to cater to these personalized needs. For example, a growing number of e-commerce platforms are designing their homepage according to users' historical browsing behavior in a way that different users see different homepage while visiting the same e-commerce platform, typically by means of search preset, publicity tools and promotion information (Rutter, 2014).

Thirdly, the operation is easy and simple. After more than ten years of data accumulation and analysis, e-commerce players have developed better understanding of users' online shopping than users themselves. The research on users is an important part of user experience design, which involves constantly optimizing processes, interaction and visual effects according to user behavior so that the operation in all aspects is as easy and smooth as possible for users (World Economic Forum, 2017).

At the very beginning, e-commerce platforms visited through mobile terminals basically copied the architecture and navigation design of platforms visited through PC. After people have developed a better understanding of users' behavior on mobile terminals, the content and layout designs of mobile e-commerce platforms' page become increasingly assimilated, personalized, extended and interesting, thus making their user experience outweigh that of other Internet products (ORACLE, 2011).

2.3.3 Unique advantages of mobile e-commerce

- a) It can effectively reduce the cost of production and operation. In the whole process of transaction, the buyer and the seller can complete every step from the negotiation to the making the deal come true through the Internet, thus greatly improving the efficiency and accuracy of transaction. The seller can also save a large amount of store rent and personnel investment, which is an effective way to economize (Ström, Vendel & Bredican, 2014).
- b) It is conducive to the integration of information and resources of sellers, by which the suppliers, manufacturers, retailers and other roles providing services could be organized into a supply chain to create an online virtual mall. The mall effectively brings information, logistics and funds together, thus improving the impact of sellers on the market and users and delivering quality goods and services to consumers with the fastest speed (Ström, Vendel & Bredican, 2014).
- c) In the age of mobile Internet, the time of ordinary users and consumers becomes fragmented and their behavior turns out to be mobilized. Various of electronic platforms provide them with diversified services 24 hours a day, thus successfully attracting consumers with different cultural beliefs, backgrounds and interests (Ström, Vendel & Bredican, 2014).

2.4 Artwork e-commerce platforms

The transaction modes of art market are constantly varying with the profound changes

in the structure of Chinese art market. The major change is that the online transaction of artworks has been used more rationally in the market, and consumer-oriented collection is promoting the rapid development of online transaction platform of artworks.

2.4.1 Characteristics of art e-commerce

As the term suggests, art e-commerce means the combination of the exhibition, sale and sharing of works of art with the Internet. As works of art are typical of scarcity and added value, almost all of today's online art sellers operate in the B2C mode. In other words, online art sellers must be art organizations like galleries, artists who are authenticated by real names, or art e-commerce platforms commissioned by artists to handle works for sale. Art e-commerce platforms function provides a place of trading for buyers and sellers, collect certain fees for management and promotion from sellers, and play a role in revenue sharing. Sellers' selling on the platform must follow certain rules, otherwise sellers will be punished. In addition to providing consumers with a relatively safe and comfortable online shopping environment, this mode makes users feel secure about online art transaction (Hill, Sullivan et al.).

Art e-commerce is the product of the Internet development and social progress. It bears art consumers' needs for physical products and virtual services. In modern society, as people's pace of life is accelerating, enjoying fast and high-quality service while smoothly receiving the desired works of art has become the common demand of art buyers. As for producers and sellers of art, the efforts to reduce the rent and manpower cost in the process of operation have also brought them generous returns. In this context, the operation mode of Art + Internet comes into being.

The figure 2 below summarized a clear trading patterns and classifications of art transactions worldwide from the perspective of tradition and modern respectively, on a basis on the statements of *Frontiers of Creative Industries: Exploring Structural and Categorical Dynamics* (Jones & Maoret, 2018). It is not difficult to find that financial

derivatives occupied the major position of art transactions nowadays, taking forward spot transaction and spot transaction as an example. But still, artists, dealers, and collections tend to purchase artworks via a traditional channel. Moreover, pricing of artworks is decided between sellers and buyers in conventional way but made according to the delivery period.

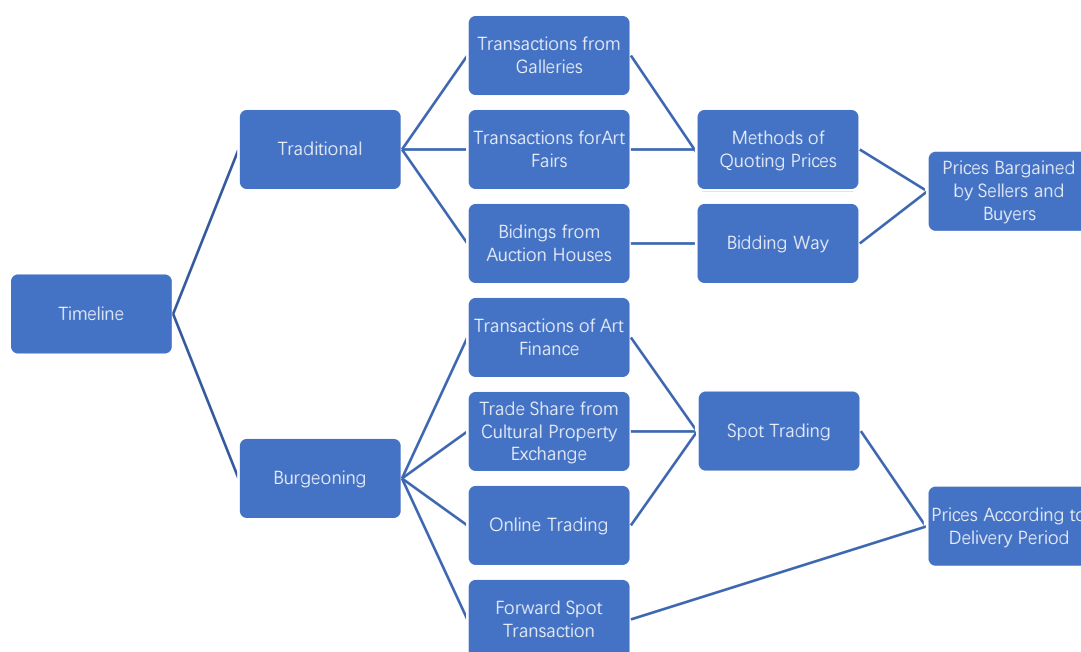


Figure 2 Comparison of transaction modes and classification before and nowadays
(Source: Personal collection)

2.4.2 Research status of art e-commerce

It's only been a few years since the emergence of art e-commerce. However, many experts and scholars have conducted rich research and discussion on this topic, which provides a large amount of data and material for us. For example, Dr. Guan Li from Chinese National Academy of Arts analyzed the main modes of operation and the characteristics of development of art e-commerce markets in China and abroad in his *The Current Situation and Trend of Art E-commerce in China*. He also discussed the current status of China's art market, explored the advantages and shortcomings of China's art e-commerce in combination with several key examples, and introduced the

success of overseas art e-commerce to be learned from (Guan, 2015). Wang Yuan at Renmin University of China studied statistics from artron.net in the past two years and gained a keen insight into the revolutionary influence of e-commerce on traditional art market. Moreover, after analyzing of the benefits brought about by online art transaction, he concluded that e-commerce would change the art market in the next few years. He pointed out that different works of art have different audience and consumers and art e-commerce players should adopt different sale models for works at different prices, thus providing consumers better user experience. In order to dig out more potential buyers on the Internet, e-commerce players must rely on the Internet knowledge and find out the common grounds between buyers and works of art. Only by doing so is it possible to accurately identify the positioning and appropriate mode of online art transaction. He also proposed practical suggestions on how to realize the online sale and purchase of works of art (Zhuang, Lu & Huang, 2016).

2.4.3 History and current situation of Chinese art market

According to historical records of Chinese art, “Chinese art market began in Wei and Jin dynasties, formed in Tang dynasty and flourished in Song Dynasty. The traditional Chinese art market is dominated by famous calligraphy and painting, ceramic and mahogany furniture that can show the cultures of previous dynasties.” (Bao & Hou, 2012) The Chinese art market was influenced a lot by the domestic political movement in the early days of the People's Republic of China. The economy in China developed well after the reform and opening-up policy, the Chinese art market developed rapidly with the improvement of people's living standards and the increasing pursuit of etiquette and ethical standards. The major museums and art galleries in all regions of China spent a lot of money on treasures, and different types of private collection groups, private collection museums and exhibition centers appeared in large numbers. In addition, a prediction from Mei Jianping, professor of finance at Cheung Kong Graduate School of Business, the art investment will become the third biggest investment hotspot after stock and real estate in China (CKGSB Knowledge, 2010).

According to the report released by the British Art Market Federation (BAMF), the turnover of artworks in China accounted for 20% of the global market, which was in the third rank behind 40% in the United States and 21% in Britain (Arts Economics, n.d.). The Research Report on the Development of Art Banking Businesses released by CMBC China Minsheng Banking Corp Ltd in 2007 states that “more than 20% of the high-income people in China had the habit of collecting. They can invest about 1% of their properties in the art collection.” (Ma, 2014)

In recent years, great changes have taken place in the Chinese art market. According to the *White Paper on Chinese Art Market: Annual Report of the Chinese Art Market (2011)*, the structure of the Chinese art market has undergone profound changes, and it is facing a significant opportunity for development. The Chinese art market is entering a new stage of development. Taking the auction market as an example, the annual turnover of Chinese artworks in the auction market in 2008 was less than 20 billion yuan. But it reached a new record of 58.6 billion yuan in 2010, accounting for 33 % of the global art auction volume. The turnover of auction in autumn alone reached as much as 38 billion yuan, which is an increase of more than 150% compared with the turnover of 22.5 billion yuan in 2009, far higher than the increase in other economic sectors. The Chinese art market continued to improve in 2011. The turnover of art auction exceeded 100 billion yuan, reaching about 102 billion yuan, and the total value of Chinese art market was about 360 billion yuan. The number of people who participated in cultural relics collection in China has approached 100 million, and the Chinese cultural relics collection is spreading to the world (Xi, 2012).

In another aspect, due to China’s advocating of the “Internet plus” strategy in recent years, art e-commerce players have sprung up in China, especially the spectacular rate of growth in 1993 because of the “Golden Projects” implemented (Chen & Ning, 2002). According to a report by artron.net, the number of art e-commerce platforms in China has exceeded 1300 (Guan, 2015). These players have greatly met users' demand for works of art and made it easier for them to own a piece of art. However, unfortunately,

with the rapid development of the Internet today, despite art platforms incessant call for user-centered design and in-depth knowledge of users, few companies and designers truly understand the daily life, behavior, feelings, attitudes and unmet needs of users. Nor did they blend into the life of those users who have purchased and used their products and feel what users feel.

2.4.4 Globalization of art e-commerce

Although the capital winter has not yet passed, more and more signs suggest that art e-commerce are receiving more and more attention from the capital market. In March 2015, Etsy, an American e-commerce website focused on handmade items, announced it had filed for a US\$100 million IPO. Artsy, an American ornamental art sharing platform, also raised US\$25 million in Series C funding. It is reported that Artsy has established cooperation with galleries in more than 80 countries in the world, by which it has collected works of many art institutions and enriched its online resources, enabling global art lovers to enjoy the fine arts of the world anytime and anywhere. HiHey, the largest e-commerce platform focusing on art auction, also received tens of millions of yuan in Series B funding in the middle of 2015. (Qiu, 2016) As an innovative cultural enterprise advocating the Internet plus art, its market value has reached nearly 1 billion yuan. In the modern age advertising everyone is an artist, the business mode and scope of art e-commerce and the corresponding target customers are becoming increasingly specific and diversified.

2.5 Operating modes of Art e-commerce platforms in China

Classified from the trading platform, China's existing art e-commerce has three forms, namely, a website, an independent smart phone APP, and a WeChat mini shop which is WeChat-based group auction (Li, 2016).

2.5.1 Art Online Trading Website

China's art online trading site appeared earliest and has the widest application range (C. Ariguzo, Mallach & White, 2016). It has a variety of forms including online auction websites of auction houses, online auction websites of independent brands, online trading of platform artworks like Taobao, trading of culture artwork property exchange, online gallery sales. Those are mixed categories owning characteristics of (Lu, Wang & Yu, 2007):

- a large span of time and categories spent on selling artworks;
- a considerable number of websites are lagging;
- the transaction content is miscellaneous such as the usability of stereotyped artwork trading website templates, portal websites using forum to post transactions, messy website pages, simple information on individual shop transactions, and merchants who bite off more than one can chew plan to sell various artworks;
- and unorganized transactions which are mostly difficult to be in fidelity, for instance, individual sellers register personal stores on the platform, pay deposits, and carry out real-name authentication to open stores. And it is difficult to ensure authenticity and the sources of artworks are uneven.

After more than a decade's development, China's art online trading websites has the following forms (Giam, 2017):

- a) Artwork monopoly websites refer to online trade websites for art objects clearly defined in terms of business scope such as those declared that the website operates contemporary art and monopoly collectables (Dahmen, 2016), for example, studentart.com.cn and other websites are personal gallery and so on.
- b) Comprehensive artwork websites refer to online art trading websites that have no clear boundaries to business scope such as time and place span across ancient and modern, China and foreign countries, the examples are panjiayuan.com, artrade.com, conventional online platform of the auction house, websites of some

culture artwork property exchanges, etc.

- c) Derivatives of large-scale art portal information websites refer to artistic portal information as the main source of traffic for websites, and websites that also carry artwork trading sections, most of which focus on comprehensive transactions with ways of forum post transactions and online transactions on the site (Li, 2016), taking artebuy.com and artxun.com for example.
- d) Sales with other non-artistic products, for instance, Taobao.com, Sunning's art channel, Xiu.com (now closed), gomeart.com, etc.

The art online trading website uses the online shopping habits of consumers to post pictures and text descriptions of the artworks for sale on the website for buyers' reference (Zettl, 2005).



Figure 3 Shop by category (from left to right are traditional Chinese painting, oil painting, wood block, sculpture, and whole). Retrieved from studentart.com.cn, n.d., Retrieved May 27, 2018, from <http://www.studentart.com.cn/>. Copyright 2013.

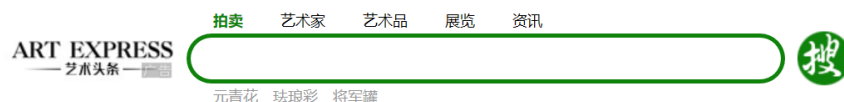


Figure 4 Sort by purpose (from left to right are auction house, artists, artworks, exhibitions, and information). Retrieved from artronl.net, n.d., Retrieved May 27, 2018, from <http://www.artron.net/>. Copyright 2000-2018.

For instance, figure 3 & 4 above illustrate the settings of the search bars of different websites which reflecting the positioning and style of the website itself, such as setting classification according to artist qualifications, classification according to art materials, classification according to purchase intention, etc., to facilitate buyers to rapidly find suitable artworks in the light of their own needs.

In terms of website page design, some websites (see figure 5) imitate the product description styles of traditional e-commerce vendors such as Taobao, focusing on introducing details of artworks separately, accompanied by high-definition large-scale images, together with descriptions of works, and even provide home suspended impression drawings.



Figure 5 Sample graph of DIY center. Retrieved from gomeart.com, n.d., Retrieved May 27, 2018, from <https://www.gomeart.com/>. Copyright 2000-2014.

Other websites are subject to the waterfall flow picture browsing mode represented by Pinterest, Instagram, and MeiLishuo. Through visual presentation, they conform to the customary thinking of buyers in the era of reading pictures in order to approach to the purpose of information diffusion. Image is information; the waterfall flow of artworks and artwork e-commerce is a pair of inherent partners in the social age of reading pictures.

Through social networks, websites connect artists and buyers to form an interactive relationship, which allows buyers to build trust in the website while getting them closer to each other, and facilitates the next transaction. The following picture (figure 6) state that 213 pieces of art are sold and 56855 concerns from friend circle, representing the credibility and interaction between the both side of transaction respectively.

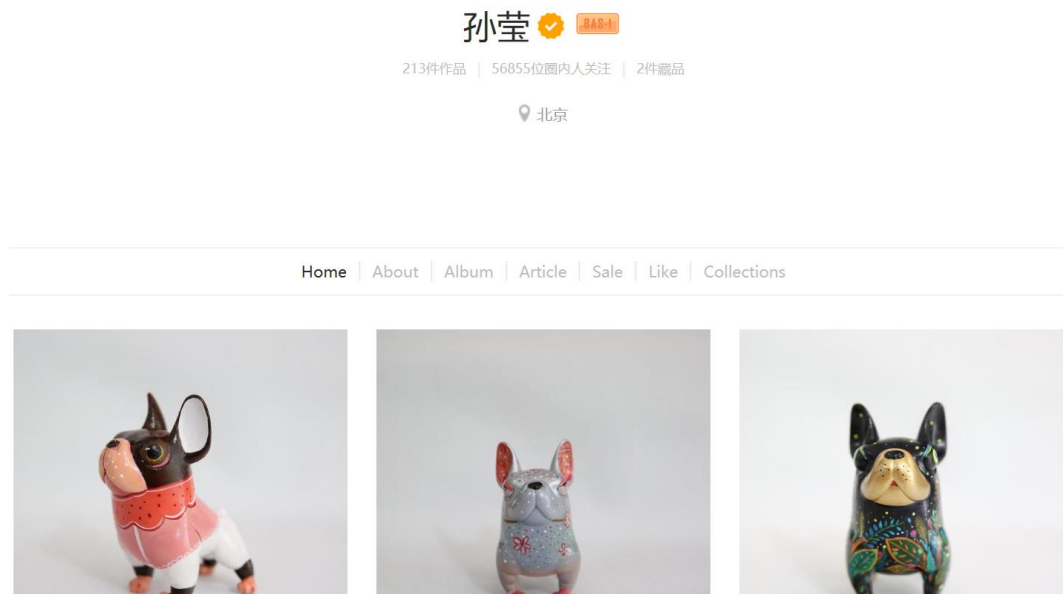


Figure 6 Homepage of individual works from Artand. Retrieved from artand.cn, n.d., Retrieved May 27, 2018, from <http://artand.cn/ying>. Copyright 2018.

2.5.2 Independent Trading Mobile Phone APP

Due to the popularity of WIFI, “mobile phone dependence” and the reduction of data fees, an increasing number of groups are beginning to shift from computers to mobile phones, seizing the fragmented time for entertainment and information (Seo, 2016). According to the 2016 report released by the China Internet Network Information Center, China's mobile Internet users have reached 688 million mobile Internet users by the end of 2015. Mobile Internet users have surpassed PC Internet users and become the most significant entry point for Chinese Internet users to access the Internet (China Internet Network Information Center, 2016).

The independent transaction smart phone APP can be regarded as the mobile phone terminal of its corresponding online art trading website brand, so that buyers can check the website's transaction information, the latest information and participate in the auction transaction always and everywhere (Lu, Lu et al. 2014). As a result of increase in artificial energy and maintenance costs, only a few art e-commerce companies have mobile apps that act in coordination with their websites, such as the mobile client of

HIHEY.com which launched in August 2012, hmqqw.com which launched in January 2015 and Artand on the line during the same period.

Presently the art mobile client software that has emerged in China has several different modes of operation. Often, art-based stand-alone smart phones are only used as tools of delivering information (Ayiah & Kumah, 2011), such as e-magazines, e-catalogs, and high-definition map depots, and they do not have a transactional function. For example, the traditional auction giants such as Guardian and Poly position the mobile phone APP as an auction channel for recording pictorial and updating daily art market trends and corporate news information. Artists, expositions, and galleries display their works, the works of artists deputized by galleries, and the maps and exhibitors of art exhibitions in the APP; Foreign artists and art institutions are predominated.

Other artistic stand-alone mobile phone APPs which have got investment appear in the form of museum in the cloud or an interactive graphic community, aiming to gather popularity and drive traffic in previous operations, and then transform it into achievable artwork transaction e-commerce platform later--because the predecessor of each payer is a user (Li, 2016). Corresponding example can be found in the application of yuntoo.com.

2.5.3 The WeChat Platform: Seize the Terminal

In 2013, WeChat version 5.0 went live and realized the function of WeChat payment (Huang & Tang, 2015). This undoubtedly provided fertile ground for the emergence of WeChat auctions as a form of social marketing under media convergence. Cityzine, Weipai, Catawiki first appeared in 2013; Yimai WeChat auction, Yangzi WeChat auction, Zhou zhou auction, Wallant Auction, ArtJeff, DaKa Auction and other artworks on the WeChat auction platform have a lot to come from behind in 2014. Although for less than eight months of establishments, the performance of several major WeChat-auction groups was impressive. Taking ArtJeff for instance, the total turnover has outnumbered 6 million (Li, 2014).

The WeChat auction divided buyers participating in auctions into multiple groups. At the auction, the WeChat auctioneer sent information of the artwork which was photographed, the resume of the artist, pictures of the artist and the artwork, and the starting price in advance to each group, and then hosted auctions synchronously. In the first place, the auctioneer counts the bids presented by each auction group and updates the current auction data in real time in each group. Bidders learn the latest bidding situation in the group by replying to the WeChat account or asking the auctioneer in the auction group. After the auction, WeChat-auction staff or buyers participated in conversations to share information with each other in the group and got close in social life. It can be said that WeChat auctions are built on the high dependence on WeChat social contact (Yang, Chen & Li, 2016). For instance, ArtJeff auction group was a red envelope group before.

This type of WeChat auction that bases on the moments is built on a much more realistic level than a website transaction and brings buyers and sellers closer together. The auctioneer directly uploads the photo of artworks to the moments and can promptly respond to the buyer's questions in the auction group. In addition, people in the group can invite friends outside the group to enter the auction group. The participation threshold is low and convenient, making the WeChat-auction group's circle not only achieve a breakthrough from within the art circle to outside the circle, but also friends outside the circle affects each other so that they try entry-level artworks collection which has a great development potential. This kind of relaxed artwork auction that is social while being playful is novel, unique and easy, flexible. It has matched the pulse of the Internet behavior among the post-80s and post-90s groups, injecting fun and new possibilities into traditional art auction trading models (Yang, Chen & Li, 2016).

Artwork auctioned on the WeChat auction has three features: the artist who is something of a master, no starting price or starting price is lower, more alternative. Generally speaking, the artist refers to artists who are younger or do not have a certain prestige; no starting price or a lower starting price is basically from a few hundred to a

few thousand dollars. The alternative auction items refer to be collections in a non-conventional sense. The collection of artworks gives collectors a sense of participation and experience (Jia, 2014). The low threshold allows art auctions to no longer be just the rich's game, and injects entertainment elements that are strongly interactive and attract more young bidders to take part in.

Ma Jian, an art economist, believes that compared with traditional auctions that require onsite participation. WeChat auctions, as mobile e-commerce, are featured by allowing buyers to participate in auctions at any time and place. This not only freed itself from the geographical restrictions imposed on traditional auctions, but also greatly expanded the scope of the artwork and the channels for transactions, while saving the transaction costs of both auctioneers and buyers. However, in virtue of the inability to judge whether the bidding process is genuine and difficult to discern between true and false, besides the same problems as traditional auctions, WeChat auctions have other problems, such as the inability to physically observe the physical objects and the size of the works (Li, 2014).

Although relative insiders suppose that the WeChat-auction platform is difficult to expand, the auctioneer needs to keep an eye on the mobile phone and the group chat information is easily washed out, WeChat auction is an inevitable outcome of the rapid development of the art market and Internet technology, which reflects the increasingly close relationship between art and life (Liang, 2014). The WeChat auction brought buyers together from the WeChat-auction group with daily updated auction information and formed certain popularity through a series of graphic and audio communication, information reading and sharing, and core services such as games, payments, and O2O, etc. The gathering of information, such as graphs, texts, etc., can reach people's gathering; reaching only from the mobile phone terminal can browse art news, exhibit artwork pictures, participate in auctions, inquire timely, complete payment and collection, and form a complete closed loop of the artwork trading chain to ensure the completion of the transaction (Yang, Chen & Li, 2016).

Another type of art WeChat shop model is the transformation from Taobao shop owner's mobile transaction mode. The artist or art institution opens an official WeChat shop. Clicks to enter the rear page to tile artwork images and you can choose to purchase. The operation of the WeChat store depends on the high traffic and moments marketing brought by WeChat (Yang, Chen & Li, 2016).

2.6 Model of revenue generating for Chinese art e-commerce operators

Although the business category of China's art e-commerce is different, its profit model which roughly includes trading commissions, membership fee or booth fee, advertising revenue, online exhibition fee and other value-added services is substantially similar (Harris, 2000).

Trading commission refers to the artist's entrusting the artwork to the artwork e-commerce merchant, or trading it through the artwork e-commerce as the media. Once the artwork transaction is successful, the artwork e-commerce merchant will receive a certain amount of commission for the transaction (Heath, 2013). Some artwork e-commerce companies set the commission amount or ratio to be a range rather than a fixed number. For example, the sssc.com has set the commission to be between 5 and 300 yuan (approximately 0.68 and 40.5 EUR).

Another source of steady revenue for art dealers is the membership fee that buyers and sellers pay. In the case of HIHEY.COM, it charges artists with management fee. Each year, artists need to pay 5,000 yuan/year (approximately 675 EUR) of online space rental fee to the art e-commerce supplier. Despite the fact that the Sssc.com does not charge the artist's online space rental fee, the person who requests to open the online shop must be an “official member” of the site. The shop owner needs to pay an annual fee of 200 yuan (approximately 27 EUR) in the first year of opening the store, and then pays 99 yuan annually (approximately 13.37 EUR); or pays 999 yuan (approximately

133.67 EUR) in a lump sum and become a permanent and effective member. Unlike the previous two, ywart.com adopts a management model that charges consumers. The buyer needs to pay 200,000 yuan (approximately 27000 EUR) in membership fee to become its “Supreme member of art association”, and paying 2,000 yuan (approximately 270 EUR) each year can become its “platinum member of art association”. Members can freely participate in the activities organized by the website, and also receive publications such as auction catalogues sent by the website. In order to strengthen the management of members and ensure that the purchase is genuine and effective, some of China’s art e-commerce companies also adopt a method of collecting deposits for both buyers and sellers. For example, Artxun.com has taken a deposit of around 100 yuan (approximately 13.5 EUR) for buyers participating in the online auction of the website to avoid the buyer auctioning the artwork but to revoke without paying. At the same time, the website also charges a certain percentage of the seller’s deposit in order to prevent sellers from selling artworks under the internet without informing the website in time, resulting in a situation where there were no goods to deliver after the online transaction (Zhai & Sun, 2012).

In addition, artwork e-commerce companies also have revenue from advertising. The advertising costs of the electronic institutions embedded in galleries, art galleries, auction houses, etc., are the stable source of advertising revenue for most e-commerce companies (Heath, 2013), and the paying for similar bidding rankings such as Baidu’s search or Taboo’s recommendation shops from artists is another source of advertising revenue for artworks. Taking the website of the Chinese Calligraphy and Painting Exchange Center as an example, different advertising fees correspond to different artist ratings, and divide different consumers into eight different types of “gold, jade, and diamonds” and create “international art seats” for them; so as they do Artebuy.com and Artintern.net, which use an analogous fee-based promotion method.

The online exhibition fee is mainly directed at art e-commerce websites that have online exhibition functions (Glassenberg, 2016). Artists can apply for participating in online

exhibitions of websites such as Artebuy.com by paying certain fees.

2.7 User-centered e-commerce product design

2.7.1 Concept and status of user experience

In the 1990s, Jakob Nielsen published his classic *Usability Engineering*, which systematically introduced the essential features of usability. In general, a product needs to satisfy at least 5 dimensions in order to have certain usability: memorability, learnability, efficiency, errors, error prevention and satisfaction. The importance of these dimensions varies depending on target user groups (Nielsen, 1993). In the following years, the term “user experience” becomes well-known to practitioners as the successor of “usability”. User Experience Design means the design should always be user-centered. This concept should run through the whole process of product design and development from the very beginning, in order to guarantee the following:

- 1) Correct estimate of user experience.
- 2) Understanding of users’ real expectations and objectives.
- 3) Able to make corrections and improvement at the beginning of the design of core functions at the lowest cost.
- 4) To ensure the balance between the main needs and functions and the user interface and minimize errors (Bhaskar, Naidu et al., 2011).

Friendly user experience is reflected in the details when a user uses the product, which is not easily perceived by ordinary people. During a user’s use of an Internet product, there tends to be unpleasant experiences, such as unable to find the desired content, unable to open it after you finally find it, or able to open it but unable to access it. Such problems directly impair a user’s feelings of a product and finally make you lose customers and the market. As shown in figure 7, a user makes a series of operation and the product jumps to a page but no exit or return button could be found so that the user must exit the whole app and restart it when he wants to give up any further operation.

For example, as shown in figure 8, almost a blank interface appears as a homepage appears in front of us. A user would have great difficulties in either reading or choosing what they want. These designs that don't take user experience seriously greatly reduce the comfort a product should bring to a user. In fact, most of the time user experience designers are representing users and talking to the designed products. It is very difficult to establish such elusive form of dialogue, because dialogue evolves with the fourth dimension – time.



Figure 7 No exit button during the operation (Source: Personal collection)

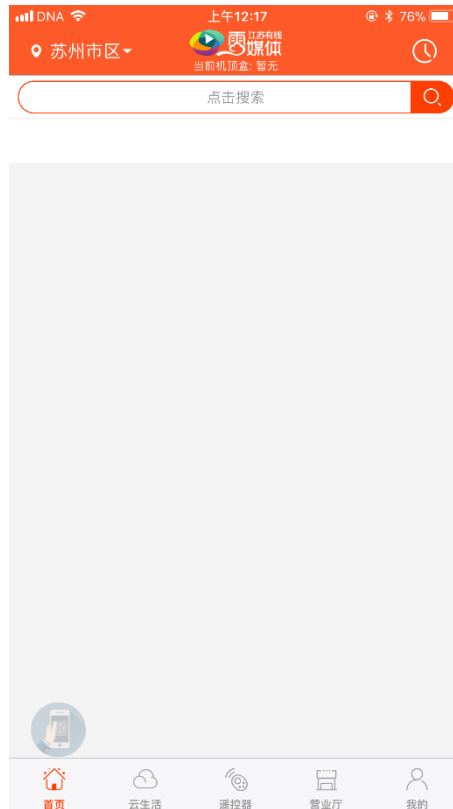


Figure 8 Homepage almost in blank (Source: Personal collection)

In the field of user experience research, the book *About Face: The Essentials of Interaction Design* explains in detail in the process of product design and development, how to get the best design process and mode by establishing user models, conducting target analysis, meticulously polishing and collecting user feedback in order to obtain the best user experience (Cooper, Reimann et al., 2014). The book *Simple and Usable Web, Mobile, and Interaction Design* introduces the technology and skills of interaction design, provides thorough answer to the problem how to develop simple and efficient designs that can please users, with the simplest methods, based on the needs of target users, and combining the complex psychology and behavioral features of human beings (Colborne, 2018). Donald A. Norman's book *The Design of Everyday Things* considers the psychology of users from the perspectives of emotional design, coexistence with design, and prospects for future design and so on, to help designers become closer to users and better understand them (Norman, 2013).

2.7.2 Influence of friendly user experience on e-commerce products

As the Internet is maturing and people's material needs are gradually satisfied, users' demands for products are evolving towards the emotional aspect. This trend emphasizing interaction and personalized experience requires that art e-commerce players prepare better solutions so as to bring broader aesthetic experience to users. In particular, with the shift from the PC Internet to the mobile Internet, users' behavior and habits are also changing quietly (Straker & Wrigley, 2015). Although behavior changes, the humanity rooted in the innermost of human beings remains unchanged and people's thirst for superior products and preferences have not changed either.

After a few years of development, in the current era of the mobile Internet, more and more cases indicate clearly to us that when the consumers make purchases, instinctive and unconscious emotional factors play more dominant role than rational judgment does. When the functions of handheld devices become increasingly perfect, it means new opportunities to provide more comprehensive user experience. Therefore, in today's fiercely competitive and homogeneity-oriented art e-commerce market, it is quite important to find out and focusing on users' needs for emotional interaction design (Straker & Wrigley, 2015).

3. Research Methodology

3.1 Methodology paradigm

Two paradigms, relativism and positivistic scientism, are adopted to this paper.

Positivism, according to Perri 6 & Christine Bellamy, is a method of research on a basis of empirical aspect. It means that the information we gathered are from the experience. Thus, I will collect and background information of the existing phenomenon of e-commerce in Chinese art market and the analyze its essential contents.

However, it is inadequate by only applying positivist paradigm. For the sake of having a holistic, objective and appropriate understanding on the research topic, the relativist paradigm also has the necessity to evaluate. It is different from positivism, relativism describes phenomenon without any exact truth or false but making research related to other “states of claims made in interpretations” (Perri 6 & Bellamy, 20). To be specific, other related resources will be analyzed whether they have appropriate knowledge on relationship between user experience and art e-commerce in China.

Therefore, this study can achieve an objective research result only if by combining those two models together.

3.2 Research methods

Differ from the methodology, this study mainly adopts user interview, comparative research, literature review, and case analysis to investigate user experience in electronic commerce in the Internet era.

- a) User interview was conducted in the form of questionnaire and face-to-face interview before the prototype design of Internet products. A large number of potential users of different types were inquired in order to comprehensively study their needs and obtain personal information like age, education, work, life

background and preference as well as views and suggestions about certain areas, and, more importantly, to provide support for results of other research methods (Alshenqeetil, 2014).

- b) Literature review means reviewing and analyzing literature on disciplines such as art and design, user experience, design psychology and interaction design, sorting out important theories and data, which can be used as an important basis for the analysis and discussion in this study, and based on which complete theoretical evidence for the significant influence of user experience on the development of electronic commerce relying on the Internet (Roeder, 2004).
- c) By comparative research, this paper compared traditional market and electronic commerce from the perspective of software and hardware facilities as well as user behavior. Through summarized the characteristics and advantages of electronic commerce based on mobile terminals, and compared the impact of different designs of two different kinds of E-commerce products on user experience, user experience has remarkable effect on art e-commerce in modern ago (Azarian, 2011).
- d) In case analysis, this paper introduced the example of “buybuy Art” (Chinese: 买买艺术), a typical mobile e-commerce player of art. By analyzing problems encountered by it and summarizing this product’s advantages that are worth learning from in terms of target-oriented design and user experience.

In addition to investigation into literature, users, competing products, trends, technology and brands with these commonly used research methods, it’s also necessary to find out more features of products and gaps in the market. If one product is in short supply in the market, an enterprise should produce it to make profit; if one product is in sufficient supply in the market, an enterprise should provide better quality to be competitive; when the market is full of superior products, an enterprise should provide the same products with the same quality at a lower price. It’s important to find out users’ needs at first, observe their living environment, habits, cultural background and religious customs and so on, and try to listen to their feelings and opinions. Users tend

to be emotional and intuitive when they start to test a new product. In addition, a lot of valuable information that designers could not be ignored in users' perceptual description in real setting.

3.3 Data collection

Good user experience is crucial to art e-commerce players. For the purpose of achieving satisfactory design effects, it is primarily important to master sufficient and effective research data. In order to obtain reliable research data, the online questionnaires were used and interviews with target users were carried out before designing “buybuy Art”, a product targeted at e-commerce. The investigation was conducted through WeChat Official Account and we also stopped passers-by in densely populated areas to obtain data. Due to these efforts, we obtained the data about users' functional needs for this product. Hopefully the data would help solve the corresponding problems.

a) Online questionnaire

Online questionnaire surveys with questions were distributed through mobile phones or computers to collect information (Evans & Mathur, 2015). Due to the uncertainty of online interviewees' locations, it was impossible to communicate face-to-face. The early stage user research of “buybuy Art” was conducted by distributing the questionnaire through WeChat Public Account to seed users of “buybuy Art” and people of various identities, professions, and social backgrounds who care about the art market.

b) Target user interview

Target user interview is an important method for user research. It means that interviewees need to comment the interview questions according to their own understanding and preferences of products and design first, then organizers will form a theoretical approach by organizing and summarizing the feedback obtained through the dialogue. This is a way for interviews and interviewees to obtain more rational understanding (Harrell & Bradley, 2009).

The contents of the interviews are similar to those of the questionnaire, but the differences between them are actually divided into two phases. In the first stage, interviewees may encounter many problems and challenges when they describe the product conception and design concept under real conditions (Phillips & Stawarski, 2008); in another phase, interviewers will pre-distribute some small cards about the design process of product, which make respondents discuss in-depth targeting to the core problems after a certain understanding. During the interview, interviewers will record the interviewees' opinions and other valid information at any time, and those contents will usually be recorded through audio or video in order to supply the missing information. Meanwhile, it is also appropriate to expand the scope of the topics. It means that organizers can discuss and communicate other relevant content outside certain designed questions with respondents during the research process, so as to obtain recommendations or suggestions with reference or innovation significance. This will provide designers and developers with more solutions to their problems.

c) Competitive analysis and brain storm

As the name suggests, competitive analysis is a way to identify your competitors and evaluate their strategies to determine their strengths and weaknesses relative to those of your own product or service (Fleisher & Bensoussan, 2007). Thus, the evaluation can be used to establish a practical design model in the shortest time.

Its content consists of objective and subjective aspects. From an objective point of view, it can obtain the real situation by evaluating the perspective of their strengths and weaknesses of related products launched by competitors. Now, it reports the fact without any personal opinion. On the contrary, subjective perspective is approximately a method that simulating the situation of users. For example, it can list the advantages and disadvantages of compatible products and own future products based on personal interests, aesthetic taste and emotions. Thus, companies could build future related products through discarding the dross and selecting the essence (Zaliwski, 2011).

The following pictures in figure 9 depicted the comparison of three homepages of developed artwork e-commerce. They have similar features which is the part of recommendations to customers, although content and emphasis they considerate during the process of design are different. Therefore, when designing the products, e-commerce should consider the advantages and disadvantages of competing products, and keep the own unique style while learning the advantages of others.

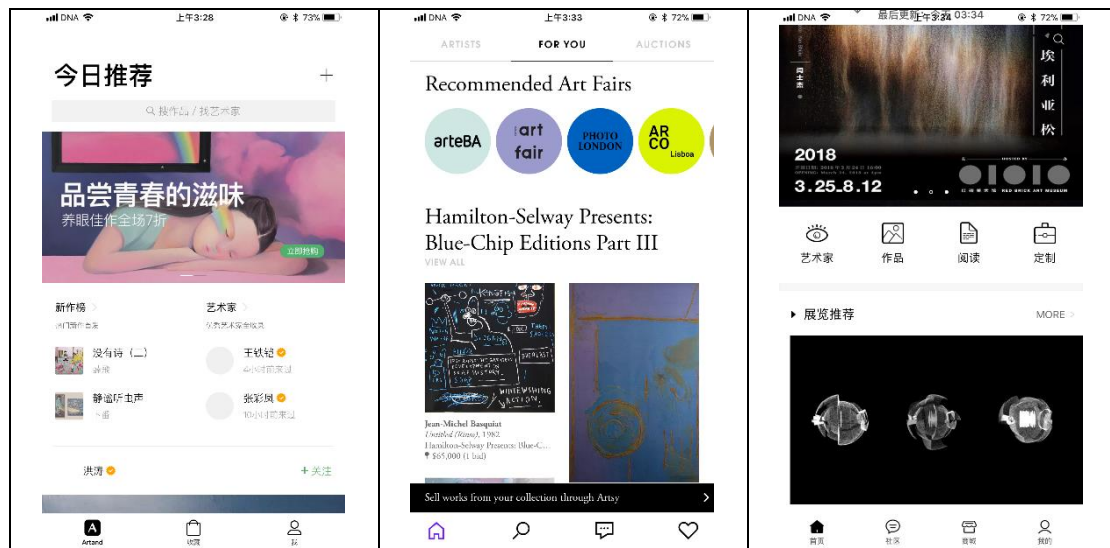


Figure 9 Interfaces of different compatible products (from left to right: Artand, Artsy, Artgoer) (Source: Personal collection)

Brainstorm is a method that design team can get inspiration, enhance creativity, and seek solutions. Usually, three to ten people with different background introduce a clear and unambiguous theme or question as a team first, then they quickly and boldly propose the solutions or ideations via discussing and sketching out different concepts. It is commonly used in the initial stages of product design. However, in fact, brainstorming can be applied in any time when needing new thoughts and solutions (Al-khatib, 2012).

4. Use Experience in Art E-commerce based on Case “buybuy Art”

4.1 Interview analysis and results

4.1.1 Research overview

In this study, the interviews were forming of antique buyers, who were also users of mobile applications of art electronic platforms. The total copies of questionnaire were sent out for 80, then sample size of 62 copies were received and the results of the interviews are taken in consideration. This research adopts questionnaire as the dominating tool for data collection. And forms of single-choice questions, multi-choice questions, Likert scale and one open question are involved in. In part I, interviews start from the basic information of interviewees such as age and revenue. Then in part II, the subject matters concerning on the factors that affect the consumers when consuming artworks online during decision-making process (see Appendix 1). The interviewees were mainly from the first-tier cities such as Shanghai, Beijing and Hangzhou; To be specific, eighteen interviewees are from Shanghai, fourteen from Beijing, eight from Hangzhou, eight from Zhengzhou, seven from Taiwan, and four from Nanjing, two from Nanning, and one from Guangzhou. These interviews cost the interviewees 8 to 13 minutes to fill in.

Although the questionnaire is not a semi-structured pattern of interview, these questions also allow the interviewees to share their user experiences regarding to Chinese online shopping of artworks.

4.1.2 Principle characteristics of survey sample

A. Gender

Male consumers dominate the consumption in artworks, based on the results of

interview. And one third of interviewees are women customers. The results can be seen from the following table 3.

Gender	Subtotal	Percentage
Male	42	67.74%
Female	20	32.26%
Valid number of respondents	62	

Table 3 Gender situation of sample body (Source: Personal collection)

B. Age

Referring to table 4, age from 20 to 35 accounts for 56.5%. 36 to 45 occupied 29% of total percentage. Those between 46 to 55 holds 12.9% and others start from 55 years old seize only 1.6%. And there is no one who is aged less than 19 years old. Thus, from the survey, people aged 20-35 are more active and familiar with art trading online than that 36-45. The speculative reasons of the rests are either lacking knowledge of web transaction or capital shortage.

Options	Subtotal	Percentage
19 or less	0	0%
20-35	35	56.5%
36-45	18	29%
46-55	8	12.9%
56 or more	1	1.6%
Valid number of respondents	62	

Table 4 Age situation of sample body (Source: Personal collection)

C. Incomes

In view of table 5, annual income from 120 001 to 300 000 accounts for the maximum

ratio which is 35.48%. Next will be the person who have yearly income from 80 001 to 120 000 and 50 001 to 80 000, 24.19% and 16.13% respectively. Interestingly, people earned less than 50 000 and more than 1 000 000 are holding the same percentage, 3.26%. In general, data covers all income groups and equally distributes, which making advantages of data gathering.

Options	Subtotal	Percentage
50 000 or less	2	3.26%
50 001 – 80 000	10	16.13%
80 001 – 120 000	15	24.19%
120 001 – 300 000	22	35.48%
300 001 – 500 000	11	17.74%
500 001 – 1 000 000	2	3.26%
1 000 000 or more	0	0%
Valid number of respondents	62	

Table 5 Revenue situation of sample body (Source: Personal collection)

D. Occupations

From the table 6 below, the majority of people are working in the business field, 40.32% and 29.03% respectively represents the finance and real estate area and business services. In addition, some students and some working in the education fields are also interested in purchasing arts although they both only account for 3.26% of the total interviewees.

Options	Subtotal	Percentage
student	2	3.26%
IT, Telecommunications, Internet	3	4.84%
Finance, Real Estate	25	40.32%
Business Services	18	29.03%

Education, Media Entertainment	2	3.26%
Manufacturing	6	9.68%
Government	6	9.68%
Valid number of respondents	62	

Table 6 Occupational situation of sample body (Source: Personal collection)

4.1.3 Research result

When people in China shopped artworks mainly based on their interests. One interviewee even mentioned that *“I do not buy the artworks that I am not interested in because the authentication of artworks can hardly be recognized.”* Another people also comment that *“No matter how clear the pictures presented on the internet, touching it, observing it, and smelling it in person can truly provide a feeling of authenticity. That is the reason why I do not buy art from those platforms.”* Besides, their taste of artworks is broad from jade to paintings, embroidery to porcelain, ivory to beeswax, carpets to furniture, colored glaze to coral and so on.

Targeting to the question of latest time buying a piece of art. Most interviewees use the artwork platforms actively, but they are not buying the art pieces very often. Usually, they purchase one to two pieces of artwork in the last three months. Only a few interviewees (10%) are shopping the artworks frequently. For example, they consume the artworks every week or every two weeks.

Nowadays, people buy art from the internet account for most of the interviewees, as they state that *“they can buy artworks by just clicking mouse”*. Yet, they also made bargains in galleries and art fairs sometimes if internet cannot be reached there, and bade the artworks they love in auctions houses. It is interesting to discover that no one in the interview group ever bought an item from the artists themselves or other art derivative shops, which shows that these two methods are out of mode.

When they were asked their opinion related to acceptance of purchasing artworks via internet, “yes” to those respondents commented that *“It is a way that changed my life. I don’t need to waste a lot of time on different means of transportation or even walk. I can stay at home and buy the artworks that I want with grabbing a cup of coffee.”* But still, 24% of interviewees who are inclined to purchase the items of artworks from galleries and auction houses without placing themselves from the online channel. In other words, traditional methods of purchasing real work of art are still in a way the deep-rooted mode. When comparing to shop artworks online, it is the way that provide customers to inspect the authenticity in person which can highly reduce the probability to purchase a fake one. Meanwhile, the site of payment can also make the link of delivery omitted.

Turning to answer “In how many percentage of income would you like to pay for artworks?”, 10% of interviewees are deciding to spend 1% to 5% of their income in relation to buy artworks. Meanwhile, nearly 70% of people have a budget of 5% to 10% of their income for pieces of artworks. In addition, cost of artworks account for 10% or even more of the income to the rest 20% of shoppers. And interestingly, all the respondents are willing to consume the artworks from their income.

To be specific, few people would like to spend 100,000CNY (approximately 13,300EUR) for one piece and only 1% of interviewees will pay 30,000CNY to 100,000CNY (approximately 4,000EUR to 13,300EUR) for artworks. Moreover, the percentage of interviewees who will pay 1,000CNY to 3,000CNY (approximately 133EUR to 400EUR) is slightly larger than that of under 1,000CNY. Besides, there is not a great deal of difference between the people pay 3,000CNY to 6,000CNY (approximately 400EUR to 800EUR) and that of 6,000CNY to 10,000CNY (approximately 800 EUR to 1,330EUR). They each account for nearly 40% of total interviewees. And 5% of interview group would like to pay 10,000CNY to 30,000CNY (approximately 1,330EUR to 4,000EUR) to a certain artwork.

Most of interviewees suggested that collection investment is their main reason to buy

artworks. But still, answers more to the objectives of collection artworks are home decoration rather than that as a gift. Besides, hardly a person would like to buy a piece of artwork aiming to follow the fashion trend.

Moreover, considerations of purchasing art through web are various. As between them, they have consumed art mainly taking prices, year and appreciation potential into account, especially the prices as the primary aspect. Followed by that, artists of works and content are considered. Additionally, some are mentioned that the quantity of artworks and the circulation value of the market should also be taken into consideration, for example when purchasing the antique watch.

It is interesting to find out how do they making decision, people decide to buy art according to their own interests have a same number of percentage when comparing to other two decisions – negotiations with their family members and recommendations from their friends.

The last but not the least, the average grades from the interviewees demonstrate in table 7 that authenticity of artworks is the most significant factor considered according to the answers of interviewees. Other factors such as the price, quality, appreciation potential as well as service of after-sale are also important when online shoppers consuming art from electronic platforms. Furthermore, interview group deem that package of the commodity is the least important element. And degree of cognition of art e-commerce is followed by that.

Key words of questions based on order of questions	Value per interviewee (with accuracy of one decimal point)
Brand recognition	8.1
Reputation	7.3
Sales price	8.8
Authenticity	9.3
Cognition channel	4.7

Recommendation from others	6.8
Quality	8.3
Customer review	7.8
Promotions	8.1
After-sale service	8.2
Authenticity from specialists or artists	6.6
Insurance offered or not	5.6
Package offered or not	3.8
Characteristics	5.2

Table 7 Grades evaluated by interviewees (Source: Personal collection)

To conclude, unlike traditional modes of consumption, consumers process online transactions under the virtual environment which providing a new channel of investment. Besides, motivation in purchasing have a certain alternative. Thus, through an in-depth research, the characteristics of behavior of online customers can be summarized below.

- A. Customers participate in the overall process of production and circulation. In the off-line market, people can only purchase their favorites in a certain range because of limitation of time and dimension. Producer can barely contact consumers directly and by contrast, consumers cannot delivery information to manufacturers which making demand of personality unsatisfied. However, convenience in communication meet the demanding of satisfaction of personality from the perspective of customers, and producers also received benefits for reducing largely the uncertainty from the market, thus, increasing more on frequency of whole transaction procedure.
- B. Strong enhancement in initiatives of purchasing could be detected. In the trend of refining and professionalization in social division of labor, customers perceive boredom and untrusted targeting on marketing strategy of spoon-feeding, as well

as increasing sense of risks. On the contrary, consumers will compare the products by receiving various of information as far as they can and achieve psychological balance through extensive web search, so as to increase the sense of trust and satisfaction from products aspect.

- C. Demands of individuation become increasingly outstanding. Web environment offered an unprecedented space of options and plenty of information to consumers assisting them to achieve the newest commodities and services. Furthermore, rational consumption increases as it is lack of the environment disturbed from other sales personnel.

From the characteristics listed above, the fundamental feature of trading online is actually the effective communication in order to meet the needs from both producers and consumers. Therefore, platforms of network marketing can grasp behavioral tendency in the future and potential purchasing power through pay attention to analysis high-class user experience.

4.2 Problems existing in online transactions for the real work of art

In accordance to the results of interview, there is a summary concerning major problems existed when people making decisions on purchasing artworks online.

A. Virtual images unconformity

- a) **Chromatic aberration.** The artwork e-commerce company presents digital artwork images on the Internet. Owing to the photography technology, photography light, and cameras, it causes the inevitable chromatic aberration in the artwork images, and the clarity of the details of the art is not better than the observation of the physical effect (Yerushalmy & Hel-Or, 2010). For some artistic categories such as oil paintings, which require a higher level of color, it is difficult for a digital art image to completely and accurately present the

rich and delicate chromatic changes in the art itself. Because of the light, the tone and other reasons, the artwork images need to be saved later to get closer to their true colors (Malik & Kannan, 2015).

- b) **Post processing.** The possibility of this kind of image post-processing has caused certain problems for some consumers. Since it is impossible to observe the physical objects, consumers can only make judgments based on the images of the artworks. These images may be over-hyper-satisfactory or have a far cry from the feeling of the artworks themselves (Barni, Pelagotti et al., 2005).
- c) **Works presentation.** After the artist's work has changed from a real touchable artwork to a virtual digital image on the Internet, the size of the digitized image and text description can hardly allow buyers to generate an intuitive concept for the artwork. The complete representation of material and texture of the artwork is difficult to grasp as well (Wahab & Zuhardi, 2013). Some art e-commerce websites have removed art from the atmosphere of an exhibition, and simply put the images of art on the website, together with a part of the clear picture and a brief description of the work (see figure 10 below); some other websites put artworks in a home environment and provide simple collocation references. In the mobile WeChat auction, the image of the artwork displayed by the merchant is even simpler, and only a certain pixel-size image can be published in the moments and the WeChat-auction group. (see figure 11 below)



Figure 10 Image of artwork can be magnified in Artand. Retrieved from Artand, n.d., Retrieved May 27, 2018, from <http://artand.cn/artid/676450>. Copyright 2018.



Figure 11 Image of artwork from circle of friends of Wei Pai Tang (Chinese: 微拍堂) in WeChat auction. (Source: Personal collection)

For solving the above problems and promote more transactions, some art e-commerce companies bring offline physical store experiences to consumers in offline art festivals, and even set up physical galleries across the country.

B. Credit crisis

The credit crisis has always been a critical problem in the online trading (Zhu, Ding & Zhu, 2007). Disputes about the authenticity of the artwork are common in the art market over the years. Because the buyers and sellers make trades through the network, consumers often can only make judgments according to the pictures of artworks (Wei, Sundaresan et al., n.d.). But due to all kinds of inconveniences caused by the virtual pictures described above, consumers' judgments are greatly disturbed, which makes consumers more skeptical about the truth and reliability of artworks traded by online artwork retailers, thus, consumers are scared off the online trading of artworks. Because

the credibility of the artwork is entirely based on their trust in the morality of the online artwork retailers, and out of the uncertainty of the online shopping risks, many consumers have limited their own online artwork purchases with the maximum consumption upper limit of several thousand or tens of thousands (Chinese yuan), so as to avoid the shopping failure risks. For example, the subject matter description is inconsistent with the facts, and the color and material of the artwork is quietly different from those described in the picture. This is also the main reason why the price of online artwork retailers becomes common (Deloitte, 2016).

The phenomenon that China artwork market is mixed with good and bad works is an inherent problem, which is amplified during the online artwork trading (Bai, Guo & Mandel, 2013). Considering the virtual nature of the network space, the online purchase of artwork attracts more concerns than the purchase of artwork in the offline physical stores, such as auction houses and galleries. Although many online artwork retailers provide online authentication service, people are also suspicious of many detail problems, for example, whether the authentication experts are reliable, and whether the authentication certificate issued together with the artwork has legal effect and credibility (Roeder, Eppard et al., 2008). Targeting at the above various problems, many online artwork retailer websites provide customers with return and exchange services. However, the authenticity of the artwork itself is a matter that is hard to explain and understand. The goods return guarantee of the online artwork retailers exists in name only and finally becomes an empty talk (Qu & Sun, 2012).

Except for the channels purchasing works from the artists themselves or their agent galleries, it is difficult to guarantee the authenticity of the artworks purchased from other channels; the artwork trading becomes complicated and confusing due to the existence of network, and it is more difficult to authenticate the artwork (Roeder, Eppard et al., 2008). To dispel various doubts of consumers, some online artwork retailers make a fidelity guarantee to ensure that the sold artworks are the works of their artists and issue relevant certificates when at the time of delivery (Sha, 2016). Some

online artwork retailers' server as bridges between the artists and consumers to accelerate the direct contact of artists and consumers as a communication medium. Artists registered in the online artwork retailers should conduct the real-name authentication, and increase the confidence level of the sold works by the form of updated works and dynamics on the website or mobile terminals (Duh, Jamal & Sunder, 2002). The online artwork retailer should not be a place to examine the authentication ability of the consumers, but should be a public trading place with the credibility and the trust of consumers. Only the big problem of authenticity is overcome, can the online artwork retailers form the reputation, create a trustworthy trading environment for consumers, and move towards the mass consumption (Roeder, Eppard, Underwood et al., 2008).

In addition, some online artwork retailers set the protection for the price of the artists' works, and consumers can know the exact price of the artwork by calling and consulting the online artwork retailer (Xia, Monroe & Cox, 2004). It is difficult for consumers to find more reviews as such one-time shopping behavior is not conducted under the good condition that has shopping records and perfect shopping rules and regulations, and most of the artworks only have one. This requires that the consumers have a deep understanding and trust of the online artwork retailers, which can promote the occurrence of the trading. If the expertise of the online artwork retailers is not strong enough, consumers will doubt the online artwork purchase. Since artwork consumption is closely related to the current economic conditions, when the supply of the mid-low artwork market exceeds the requirements, counterfeit sales and auctions may become a survival way of some merchants once the operation becomes stagnant.

The social network connected by artists, online artwork retailers and consumers is one of the method to solve the trust problems, and the consumers build the trust relations with the online artwork retailers and artists during the interaction and services (Gefen, 2002). The corresponding example is the negotiated purchase, repurchase and provided to consumers by the highly socialized WeChat auction and online artwork retailers.

C. Payment and logistics issues

When consumers purchase the artworks online through online artwork retailers in China, the common method is that the payment for goods is firstly paid to the bank account of the online artwork retailers. Then, consumers will confirm the payment at the online artwork retailers when they receive the artworks. Finally, the payment for goods will be paid to the artist (Wang, Hahn, & Sutrave, 2016). During the whole procedure, the online artwork retailers serves as the “third party”. But such a “third party” is not a payment platform of the bank system that is independent of the trading, the online artwork retailers are themselves. Therefore, the “third party payment” provided by the online artwork retailers maintains the fair in buying and selling on the surface. There are actually a lot of disadvantages: firstly, the online artwork retailer is not a bank and is not qualified to be the entrusting party of the payment for goods; secondly, the online artwork retailer is not a pure trading platform and also plays the role of the seller; thirdly, the online artwork retailer is a participator of the artwork trading and it can profit only when the trading is completed (Qu & Sun, 2012). Therefore, the online artwork retailer always expects to facilitate the trading, rather than maintain the rights and interests of the buyer and seller.

Considering the special materials and diversity of the artwork, it is difficult for the common logistics company to satisfy the package and transportation requirements of the artwork. During the transportation, there are a lot of bad situations, for example, the artworks can easily be damaged by couriers who lack of professional training, oil painting is folded for transportation convenience, and traditional Chinese painting is folded by couriers. Meanwhile, the online artwork retailers rarely buy the professional artwork insurance for the cheap artworks, and the transportation insurance for the general merchandise faces with the difficulty of loss assessment after the artwork is damaged (Morawitz, Hein et al., 2013).

According to the new *Law on Protection of the Rights and Interests of Consumers* published in 2013 in China, if the operator sells the merchandises by network, TV,

telephone, mail order and other methods, consumers have the right to refund the merchandise without reasons within 7 days after it is received (Standing Committee of the National People's Congress, 2013). But during the implementation, all online artwork retailers add the special regulations independently. Except the conditions that “the picture structure of the work is inconsistent with the online picture” and “the artwork is damaged due to the transportation”, the artwork will not be returned and exchanged for other reasons (Srinivasan, Anderson & Ponnayolu, 2002).

In conclusion, although many online artwork retailers have the return and exchange guarantee in China, most of them are difficulty to be realized (Lee, 2002). Because there is no support of the real third-party payment system, and consumers is unable to freeze the payment for goods through applying for refund to equally negotiate with the seller.

4.3 Strategies in enhancing user experience in art e-commerce

In view of the summary above, in order to improve the user experience of works of art making products stand out among numerous competing ones among electronic platforms, designers should comply with the following strategies.

4.3.1 Take advantages of flat design

Reducing the level of information hierarchy, as the name implies, is to streamline the organizational structure of information. Considering that not everyone has rich experience when he or she starts to use apps, and that different products have different operational logics, designers should take fully into account the user experience of those who are using a specific product the first time to reduce their learning costs when designing product information hierarchy and interaction logic. This requires designers to add the idea of “Flat Design” in their designing process (Johnson, 2014). It is believed that "Flat Design" is a visual style opposite to “quasi-physical design”, namely removing redundant, heavy and complicated decorative effects. In fact, in addition to visual elements, “Flat Design” also refers to the reduction of informative levels, making

users achieve their operation purposes without complicated operation procedures, namely the flattening of interaction (Harada, Witkin & Baraff, 1995). For example, nowadays smartphones are prevailed, so some information such as weather, date, and clock is needed almost every day; but few users have thought about why they cannot have access to the weather without opening an application on the desktop of a smartphone. If these frequently used functional modules could be displayed in a more concise way, the user experience would get a great upgrade. This design method saves users' learning costs and their time; more importantly, it also reflects the products' care of users (Lockwood, 2009). The care represents itself in the detail design. Therefore, I deem that an icon is not only an entrance to the program, but an information carrier.

In the design process of “buybuy Art”, on the one hand, an important problem in front of me is how to simplify the operation process and enable users to achieve their use purpose through minimum clicks and page jumps. On the other hand, after several years of development, e-commerce apps have evolved a set of inherent operation process that has been deeply embedded in users' hearts and is not easy to change (Gunasekaran, Marri et al., 2002). Therefore, my designing idea is to display as many contents and functions of the entire product as possible on the front page of the product. This display does not refer to a disordered stack of content, but to combine with the characteristics of the “buybuy Art”, distinguish primary and secondary contents and organize them organically through navigators. For instance, in the product operational strategies, the main function of “buybuy Art” is to match artworks with different scenes and environments so as to provide differentiated references for users with distinctive needs. To the end, at the very beginning of the front page display those scene-combined artworks. Click on them, and users can change scenes, frames, linings and the content of artworks according to their own needs. In this way, only two steps are needed to select suitable artworks based on your needs and interests, and you can also store these pictures locally or share them with your friends. (See figure 12 below)

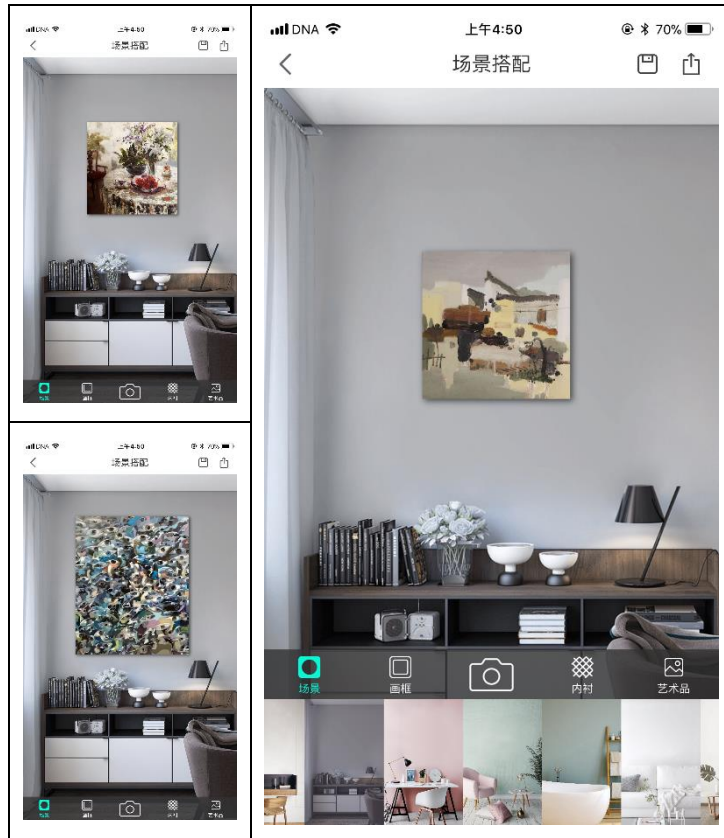


Figure 12 Exhibition effect in the same scene but with different arts (Source: Personal collection)

In terms of visual design, all components refrain from the visual styles of projection, gradient, etc. Instead, they resort to some abstract design language in points, lines and surfaces and combine with high-profile and modern scene pictures, in an attempt to convey a fresh and elegant feeling to users.

4.3.2 Focus on customer feedback

The importance of user experience is far beyond our expectation. In the early user surveys, the feedback given by most potential users was: If I did not find what I want here, I would leave. Users' feedback and usability testing play an instructive role in discovering problems in the designing process. Besides, fine tuning some operations is also of vital importance (Kelly & Belkin, 2001).

In this ever-changing society, we get numerous complicated information every day,

so users often lack patience for something. This is not just a simple idea of one user, but the common aspiration of many users. The real core of user experience is catering to users' preference (Good, 1996). In many of today's art e-commerce products, despite that the content, type, price, and other factors of artworks are still key points for attracting users, as the differentiation of content becomes smaller, the pleasant user experience is getting to be more important (Huang & Benyoucef, 2013). Therefore, if one wants to stand out among various e-commerce artwork companies, having the flattening visual form is not enough; it needs to make sure the visual guide of flattening can achieve the real functional demands.

4.3.3 Getting access to light social

As social software such as WeChat and Facebook become popular, Internet products' function for aggregating people online and making communication is widely concerned and recognized (Gao, 2013). The Social Network Site (SNS) built on the Internet has established a network of relationships beyond space limitation. In this network, the Internet platform collects a large amount of users' information and builds deeper social relationships among users because of those information (Boyd & Ellison, 2007). Due to the improved privacy and timeliness of artwork e-commerce based on mobile devices, it is possible to view the evaluation and collection of a piece of art at any time and any place, gradually making the purchase and collection of artworks a part of life. Through social contact, users are able to meet and join in the small social circles with the same hobbies and interests, thereby increasing products' user viscosity (Ohtsuki, Hauert et al., 2006).

Compared with traditional Internet agencies and e-commerce companies, the development of mobile Internet enables users to create and share content whenever and wherever they like, so that the Internet can serve users better in real life.

The nature and function of art e-commerce determine the essential difference between themselves and some mainstream social software (Hawk, 2004). “buybuy Art” added

the light social functions while trying to conduct displays and transactions of artworks, enabling users to achieve an immediate and accessible communication with creators of artworks, event organizers, and art lovers, so that users can understand the artwork better. In addition, it also helps people with the same hobbies and occupations to form different social circles, where they share and comment on relevant updates in real time, achieving benign communication and interaction. It can encourage people around to participate in the circle together to expand the user group and attract more potential users. As shown in figure 13, users can carry out some operations such as comments or likes on the page of artworks details and directly contact sellers or creators to ask related questions about artworks.



Figure 13 Detailed introduction of art piece (Source: Personal collection)

4.3.4 Personalized design oriented

The e-commerce platform can be used as a personalized information terminal after

integrating more functions. If the Internet access is available, the generated UGC, the set status, the layout and use of the content of each user are different from that of others. Therefore, Internet products including artwork e-commerce must meet the personalized demands of users. This kind of personalized design not only contains visual differences, but refers to the difference in page layouts and interaction logics (Zhang, Lu et al., 2014). The emotional interaction design talks more about users' behaviors and the specific design for their behaviors (Rogers, Sharp & Preece, 2011). For instance, some left-handed users find that swiping to the right on a smartphone is more difficult for them than most people, so the design of certain products must take into account the needs of the minority.

There are no two items that are exactly the same, and the using habits of people vary likewise. So far compared with large-scale interactive devices, smart terminals are relatively designed less for users' behavior, causing the differences in the product operations gradually become smaller (Wu & Wang, 2005). Therefore, while paying attention to certain personalized designs, e-commerce should follow the design specifications of the mobile terminal and distinguish the differentiation suitable for its products from common grounds. Only in this way can the products be accepted and adored by most users.

In the module of weekly recommendation in “buybuy Art”, the back-end can calculate and record all previous search and browsing data of users, and then analyze each user's preference for artwork style, type, price, etc. so that the recommended artworks provided for each user are different. After logging on the platform, users will enjoy their unique pages with contents that are different from others. (See figure 14)

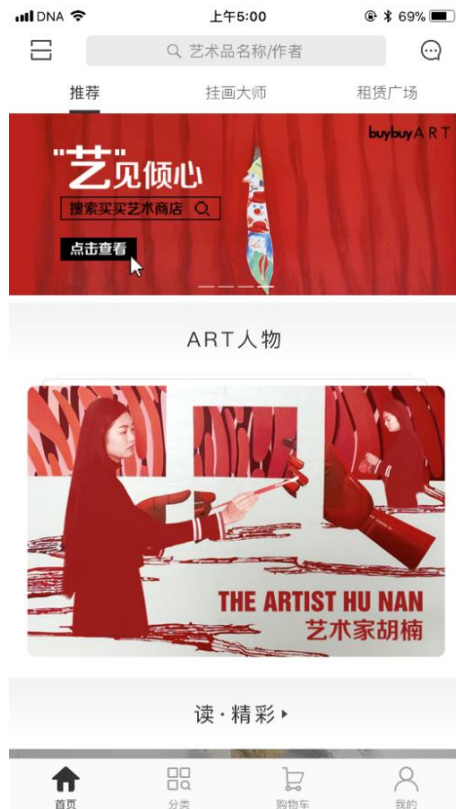


Figure 14 Recommendations based on personal browsing history (Source: Personal collection)

5. Conclusion

The research is based on a methodology in an empirical, objective and scientific framework. By collecting, comparing as well as analyzing the data, the conclusion can be summarized. Firstly, brief statement of the whole thesis was made. In the second place, the possible limitations will be illustrated. The last but not the least, future research directions and suggestions will be stated.

5.1 *Summary*

Now, in the modern age of growing degree of popularity, the “Internet plus” strategy proposed by Chinese government is not implied to the simple combination of the Internet and traditional industries. More importantly, it means full research into state-of-the-art technology and increasingly sophisticated mobile Internet platforms as well as maximal application of them, through which a new innovative way of development should be found out in order to realize the profound integration of the Internet and art market (Ye, 2015). Moreover, the proposal of the strategy also means the emergence of a new social formation. In other words, with the progress of society, the mobile Internet fully integrates with other industries and functions as a catalyst and economic and social benefits brought by the Internet become rooted in traditional art transactions, as a result of which a new social and economic mode with the Internet as a medium comes into being.

In this paper, we deem that good user experience is inseparable from advanced technologies and excellent hardware performance. It is believed that with the development of technology, the way to improve the user experience will become more diversified and differentiated. But no matter how it develops, the user-oriented design concept will never change (Huang & Benyoucef, 2013). Due to the limitations of time and length, the user experience as the core in art e-commerce was discussed. Through studying in the development of internet in China especially the “Internet plus” strategy,

and the evolution of e-commerce particularly the art e-commerce platforms, it is not difficult to understand the significance of improving user experience in the “user-centered” era. Then we can come up with the strategies on user experience improvement based on that.

The study is on account of summarizing the studies from accessing previous research but also putting forward solutions for improving user experience. As user experience is undoubtedly the lifeblood of Internet products throughout the entire the history of development of Internet products (Molla & Licker, 2001). Only the good user experience can achieve a good reputation in the industry and attract more potential users to download and use products, thereby gaining a competitive edge in the fierce market. With the case study of “buybuy Art” and analysis of interviews, problems such as image discrepancy between online and off-line; credit risks which frequently appeared in nowadays transactions; payment and shipping cannot be smooth in the process.

Moreover, design strategies of enhancing user experience are put forward in the study. Firstly, fully taking advantages of flat design can simplified the operation procedures which helping new customers or those lacking web shopping experience to purchase artworks successfully. Besides, replies to users in the first time can be regarded as the respect as well as admirable user experience to customers. Moreover, light social media can also benefit to improving user experience because of their interaction factor. In the end, personalized design can tremendously optimize the user experience because it is telling “I make it because of you” to customers, and customers can consume what they are keen on based on their interests. All those are holding a purpose of helping art e-commerce to attract increasing number of potential customers from competitors.

5.2 Limitations

In the first place, all the interviewees are Chinese and they provided the answers in Chinese language. Thus, the author may have the limitation in translating all their real thoughts into English. From that, the results of the interview probably cannot manifest

how significant the user experience for art e-commerce providers are. Besides, the results cannot be evaluated in the key of practicability and reliability.

Furthermore, the results gathered could be altered because of the methods of research. In this study, the selected case and other art electronic websites as well as the interviewees are chosen by the author. Therefore, it may affect the facticity to some extent because they are best fit the topic.

In addition, the questions from the questionnaire are raised by the author. In view of this, those questions may not cover completely the research questions which leading the answers deviate.

5.3 Future research directions and suggestions

After the research of this paper, it is also noticed that other possible challenges, such as the arrangement and selection of apps' content, the strategy of product operations, and the improvement of visual design, still need further research and discussion. In addition, in the follow-up research process, we will continue to consult reference materials and conduct researches on more typical Internet products at home and abroad, extract useful design language and design process that can be applied to the artwork e-commerce from Internet products, as well as find and enhance the effective junction point of the user experience in artwork e-commerce.

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Appendix

Appendix 1: Form of Questionnaire

Questionnaire

Time _____

Location _____

Name _____

I. Basic Information

A. Gender: ☐ Male ☐ Female

B. Age: ☐ 19 or less ☐ 20-35 ☐ 36-45 ☐ 46-55 ☐ 56 or more

C. Annual Pretax Income per year (Chinese Yuan, CNY):

☐ 50 000 or less ☐ 50 001 – 80 000 ☐ 80 001 – 120 000

☐ 120 001 – 300 000 ☐ 300 001 – 500 000 ☐ 500 001 – 1 000 000

☐ 1 000 000 or more

D. Occupation:

☐ Student ☐ IT, Telecommunications, Internet ☐ Finance, Real Estate

☐ Business Services ☐ Education, Media Entertainment ☐ Manufacturing

☐ Government

II. Buying Inclination

A. What kinds of artwork do you like? What style do you like?

B. When was the last time you bought a work of art?

☐ 1 month ☐ 3 months ☐ 6 months ☐ 1 year or more ☐ Never

C. What is your buying channel? (multiple option)

☐ Gallery

☐ The author or the artist himself/herself

☐ Art fairs

☐ Auction house

☐ Art e-commerce

☐ Art derivatives shop

☐ Other

D. Do you accept to buy artwork online?

☐ Yes ☐ No, please state your reason _____

E. In how many percentage of income would you like to pay for artworks?

☐ 1% or less ☐ 1% - 5% ☐ 5% - 10% ☐ 10% or more

F. How much are you willing to spend for a piece of artwork? (Chinese Yuan, CNY)

☐ less than 1 000

☐ 1 000 – 3 000

☐ 3 000 – 6 000

☐ 6 000 – 10 000

☐ 10 000 – 30 000

☐ 30 000 – 100 000

☐ more than 100 000

G. What is your purpose purchasing artwork?

☐ Home Decoration

☐ Gift

☐ Collection Investment

☐ Fashion Trend

☐ Other _____

H. What is/are your main considerations when buying art? (multiple option)

☐ Prices

☐ Creators / Artists

☐ Content

☐ Year (ancient times, modern, contemporary era)

☐ Appreciation Potential

☐ Other _____

I. How you make decisions when you buy art?

☐ Own interests

☐ Negotiate with family members

□Recommend from Friends

J. How do you measure importance of following factors of artwork e-commerce?

Please rate it on a scale of 1 – 10. 10 means you strongly agree, 1 means you strongly disagree, and 6 means the neutral.

1. Brand recognition of platform;
2. Reputation of artists and public image;
3. Prices of commodity;
4. Authenticity of commodity;
5. Cognition through TV, magazines, newspaper or other advertisement;
6. Recommendation from family members and friends;
7. Quality of commodity;
8. Customer review to commodity;
9. The intensity of commodity promotions;
10. The after-sale service of goods;
11. Authentication service from online specialists or promises from the artist himself/herself;
12. Providing the insurance of commodity or not;
13. Providing unified outer packing or not
14. Characteristics compare with other alternatives

	values from low to high (“1” is the lowest score, “10” is th highest score)									
	1	2	3	4	5	6	7	8	9	10
Q1										
Q2										
Q3										
Q4										
Q5										
Q6										
Q7										

Q8										
Q9										
Q10										
Q11										
Q12										
Q13										
Q14										